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George J. Miller, *Editor*

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Miss Logan is a member of the department of geography, Western State Teachers College, Kalamazoo, Michigan, and co-author of Elements of Geography. This is the twelfth article in our HOW TO TEACH IT series. Another article in the series, by Miss Logan, will deal with the Corn and Mixed Farming Region of the United States.

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Dr. Roucek is a professor of social science, Centenary Junior College, Hackettstown, New Jersey. By birth he is of Czechoslovak origin and is a recognized authority on the Balkan countries, and a frequent contributor to numerous magazines. Dr. Roucek is author of the monograph, "The Minority Principle as a Problem of Political Science," and of the books, "The Working of the Minorities System Under the League of Nations" and "Contemporary Romania and Her Problems." At the invitation of the Romanian Government he visited Romania in 1930.

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Dr. Visher spent the first semester of 1931-1932 and the summer of 1932 in the Department of State, Washington, D.C. Part of his work there concerned international boundaries. The article in this issue presents a summary of some phases of interest to readers of the JOURNAL.

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Mr. Preble is head of the department of geography, State Normal School, Farmington, Maine, and author of a Teacher's Manual for the Study of Maine Geography; Around the World with the Fliers; and Teaching Geography in the Two-Year Normal School, the last appearing in the JOURNAL, December, 1931. This is the thirteenth article in our HOW TO TEACH IT series.

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Dr. Swartz is in charge of the Industrial Department of Haaren High School, New York City, and author of Instructive Geography Cards, and Instructive Outline Maps; co-author of At Home and Afar, and inventor of the Zone and Season Finder. He served as Secretary of the Committee on the Revision of the Course of Study in Geography for New York City, and for several years gave courses in geography in the College of the City of New York. This is the fourteenth article in our HOW TO TEACH IT series.

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Dr. von Engeln is a professor of geography at Cornell University and author of numerous books ranging from school and college texts to books designed for the general reader. His many personal experiences gained from extensive travel, and his skill in giving clear-cut pen pictures of what he has seen, led us to induce him to prepare a series of brief "Travel Sketches" for the JOURNAL. This is the first of the series. All the others are complete and will appear during the next year or more.

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A GUIDE TO THE ORGANIZATION OF A GEOGRAPHIC UNIT

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A teaching unit is a body of material organized by means of careful study directions so as to lead the learner to the mastery of a definite core of thought or major understanding. By the *core of thought* we mean the basic understanding which is essential to the functional use of the material presented in the unit. This core of thought, or major understanding, is the *organizing core of the unit* and all minor understandings presented are specifically directed toward its mastery. Hence the individual who hopes to do effective teaching in any field must have clearly in mind the *major understandings* which constitute the goal of each successive unit in the course he plans to teach and the *minor understandings* with which the student must be thoroly familiar before he can attain mastery of the major understanding which is the goal of the unit.

THE MATERIALS OF WHICH GEOGRAPHIC UNITS ARE MADE

Since modern geography is the scientific study of the relationship of cultural (man-made) items to the natural environmental (provided by nature) items, the goal of the geography teacher must be to lead students to the mastery of major understandings of this sort. A geographical "understanding" is the understanding of a geographical relationship, that is, *an understanding of just how a given cultural item or group of items is related to one or more natural items.* It is significant to know that the relationship between two or more human items, or between two or more natural items, tho not in itself a geographic relationship, may become a very essential part of such a relationship if used in explaining just how a given human activity is related to the conditions of the

natural environment in a given region. For instance, the dominance of rice production (to the extent of 70 per cent of the arable land) on the densely-peopled Yangtze Plain in China is related to the universal use of rice for food by the Chinese of this area. This, in turn, is related to the fact that this use of rice for food is a custom centuries old in this section of China and that the custom has been habitually followed by these people thruout all this long period because of the ingrained veneration of the Chinese for his ancestors. This veneration, in turn, relates back to the teachings of the ancient philosopher Confucius who recommended filial obedience and reverence for the opinions of one's elders. All this discussion consists of *human to human* relationships; none of it is geographic. Further investigation reveals that rice produces more food to an acre than any other cereal crop; that rice grows well on the almost flat, deep, fertile, easily flooded, alluvial soil of this region with its ten to twelve months' growing season and with its seventy inches or more of precipitation coming as a summer maximum. If we relate these alluvial soils to the erosion of the nearby highlands by the heavy precipitation that falls thereon and to the sediment that is desposited along the river channel and at its mouth as the river carries its load of silt to the sea; if we relate the temperature conditions to the distance and direction of the region from the equator—then we have discovered significant *natural to natural* relationships, in themselves non-geographic. This group of natural environmental items takes on geographic significance, however, if used to help to explain the growing of rice to such a degree on the Yangtze Plain.

This discussion brings sharply to mind the fact that any given item takes direction and value from the way in which it is used. The geographer draws from any field material that helps to explain why man is relating his activities to the various natural environmental complexes of the world as he is doing. Tho facts of human activity and natural environment are the materials out of which geographic relationships are made, *they do not constitute a geographical understanding until a relationship is established between the human activity and the natural environment.* Furthermore, factors other than those of the natural environmental complex are again and again involved in helping to explain man's utilization of the natural environment. For example, in 1775 settlement began in the Blue Grass region of Kentucky. Between 1775 and 1795

the people of this area were subsistence farmers. In the period from 1795 to 1815 the work pattern markedly changed. Subsistence farming gave way to commercial tobacco production. The natural environmental complex remained practically unchanged, but the human complex changed materially. Thus human activity cannot be explained wholly in terms of natural environmental conditions. History tells us that in 1795 many people migrated from the Tidewater area of Virginia. For generations these people and their forbears had been commercial tobacco growers. Lexington limestone proved, on trial, to be especially well suited to the growth of tobacco. Climatic factors also proved suitable. Other factors, both political and economic, helped to explain the rise of the tobacco industry in the Blue Grass region during this period. For instance, the Pinckney treaty with Spain in 1795 opened the lower Mississippi River for free transportation and thus cheapened the carriage of their surplus crop to market. The European market for tobacco was strong because of the demand for this commodity by the soldiers of the Continental Wars then in progress in Europe. At the close of these wars in 1815 the bottom fell out of the tobacco market and the people of the Blue Grass turned for a time to the raising of hogs. The Napoleonic Wars and the Pinckney treaty attain geographic quality when so used to help explain man's utilization of and, therefore, his relationship to, the natural environment. Such materials as these—distinctive human activities characteristic of a region, significant items giving a hint as to the type of man who is doing the adjusting, and pertinent facts as to the outstanding natural conditions of any given area—are the stuff out of which geographical relationships are made and geographical relationships are the warp and woof out of which geographic units are constructed.

A Generalized Guide to Geographic Unit Organization

Location of the Region. In beginning the study of a region for the first time the learner's first question naturally is, "Specifically, *where* is this region?" He should answer this question in terms of the *geometric* and the *geographic* location of the region. By the geometric location we mean location in terms of latitude and longitude. The location in terms of latitude should at once suggest to the learner significant facts in terms of the sun behavior of the region and these facts should, in turn, be translated into generalized ideas of

the seasonal temperatures of the area. By the geographic location of a region we mean location in relation to surrounding regions. The learner should be led to ask such questions as "Is the region *peripherally* located?" That is, is it located on the edge of the land mass as is Norway, for instance? "Is this region *focally* located?" For example, is it at the point of convergence of natural routes as is the Chicago region? "Is the area *strategically* located?" That is, is it at a point which controls inlet to or outlet from important areas as in the case of the Panama Canal, the Straits of Gibraltar, the Suez Canal and the like?

Pre-view of the Region and Motivation of the Unit. After locating the region the second step in the organization of a geographic unit consists of a preliminary over-view of the region to discover how it is like and how it is different from the regions already studied. The sun behavior generalizations suggested by the latitudinal location of the region raise questions and suggest possible answers which need later checking. At this juncture the teacher should present for examination by the students pictures, maps, grafs, reading and other like materials which will bring sharply to the mind of the learner the major problem or center of interest in the study of the region which he is just entering. The material presented should bring out sharply disconcerting data concerning the region which will raise worth-while "why" questions concerning the major understanding or problem of the unit. This raising of the problem in the mind of the child is perhaps the most crucial step in unit building for *the problem* (the solution of which develops an understanding of the geographical personality of the region) *becomes the organizing core of the whole unit* and toward it all the elements of thought, or minor understandings, are pointed as directly as the spokes of a wheel point to the hub. If all the understandings are not pointed toward the solution of a central problem or the gaining of a major understanding, then the unit lacks unity. If the problem, or the core understanding as it is sometimes called, is not worth while and of major value, then the unit cannot be worth while. For example, in the study of a unit on Switzerland motivation can be gained effectively thru the presentation of data giving the density and spread of population and the areal extent of the country. This data gives the learner a concept of a small country with about one-half of the population in the northern third of the country. An examination of the distribution

of the population reveals that the densely settled northern plateau section averages four hundred people a square mile, while in the southern mountain section there are large tracts of land where the population is less than ten a square mile. An examination of a topographic map of Switzerland shows that about three-fifths of the area is mountainous. The map of the mineral resources reveals that the country is lacking in the mineral resources basic for modern industrial expansion. Upon looking at the trade statistics for the region the learner may be disconcerted to find that Switzerland is one of the leading industrial nations of Europe and an important exporter of manufactured articles. So disconcerted he should be immediately led to ask himself, "*How is it that Switzerland, poor in the minerals basic for modern industrial development, centrally located and without an outlet to the sea, with three-fifths of the area mountainous and the rest rugged plateau country, encompassed by mountain barriers with relatively few good passes, has become one of the leading industrial nations of all Europe?*" Or he might say more simply, "Why is man utilizing the natural resources of Switzerland as he is?" The solution of such a problem brings the learner to an understanding of the personality of the region dealt with.

The Step of Assimilation. The third step in unit building is one of *exploration* to discover the specific geographic relationships or elements of thought which will lead the student to the effective solution of the problem that has been set for the unit. It is at the same time a period of *assimilation* in which the learner, under the guidance and direction of the teacher and with the aid of the text in so far as it will so function, is breaking up the major understanding, or problem, into the significant, worth-while minor understandings of which it consists. These minor understandings are *specific geographic relationships.*

Since man and his activities, in terms of his utilization of the natural environment, are the focus of attention in modern geography the student should be led *first* of all to discover the various human activity patterns of any region which he is investigating and *second* to learn the natural environmental patterns in so far as they help to explain the human activities discovered to be important. The learner who is entering a region for the first time should be directed to guide his exploratory activities by the use of the following questions: "What are the dominant human activities

within this region?" "Why, in terms of natural environmental conditions, is man so adjusting himself in this region?"

Having specifically located the region in Step I and having discovered certain disconcerting facts concerning man's use of the area in Step II, it seems logical that the learner might well begin a careful study of the geographical conditions within the area by examining in detail the population map which was surveyed briefly in Step II at the time that he was attempting to get a "bird's eye view" of the region.

In Step III he should seek to learn the relationship of each of the distinctive human activities of the region to the natural environmental complex found therein. Having learned the significant elements of the population pattern the next step in exploration may well be an attempt to discover the significant elements of the *work pattern* of the region. In what *locations* and in what *kinds of places* are the characteristic types of activity carried on? Are the methods of carrying on the industry directly related to the conditions of the natural environment? If not, the geographer is not interested in the method. If so, what elements of the natural environment help to explain the methods used? *Why,* in terms of the natural environment, are these activities carried on *where* they are *as* they are? All details should be omitted which do not bring the learner directly to the understanding of the geographical relationships which are most helpful in bringing him to an understanding of the geographic personality of the region.

It is helpful in connection with the discovery of the major human activity patterns for the student to make a work regions map which will definitely delimit the major work regions. It is essential that the student understand that the boundary line drawn between two or more areas, each having its own characteristic type of human activity predominant, marks the center of a zone of transition between two or more work regions. In other words, a work region may be defined as an area within which there is a common predominant work pattern. No hard and fast line can safely be drawn between work regions as can be drawn between political regions for the reason that one work region tends to merge almost imperceptibly into another.

Not only does the student need to see the relation of X activity to the natural environmental complex of the area in which it is carried on, but he also needs to see the relationship of X ac-

tivity to activities Y and Z and to see in each case the natural environmental conditions that help to explain these activities. The understanding of these relationships and interrelationships helps the learner to see the relationship of each minor understanding or element of thought to the major understanding or problem.

Before we can fully answer the question, "*What* is man doing in this region and *why* is he so doing it?" we must investigate also the political and social activities characteristic of the area to see if any of these activities are in direct relationship to the conditions of the natural environment found therein. For instance, have the people of this region made any laws that are significant in terms of their adjustment to the natural environment? Do they have any characteristic attitudes of mind toward political questions which can be related directly to the complex of natural environmental conditions roundabout them? A simple example of this type of political relationship is to be found in the fact that in Switzerland only one member of the family is permitted by the law of the land to engage in the hazardous undertaking of gathering wild hay from the high cliffs and steep mountain slopes. The relationship of this political activity to the natural enviromental layout is obvious. In the case of social activities such as types of dress, types of social organization, group customs and the like, the number of direct relationships to the natural conditions within the region are legion. One simple example of this type of relationship in the Swiss area is the clannish habits of the people of the isolated mountain coves.

Over-view and Summary of the Most Significant Findings into a Core of Thought of the Geographic Personality of the Region

The fourth step in geographic unit organization, the step which is the goal toward which the whole of the unit has been directed, consists of the careful evaluation of one's findings and the summary of those items pertinent to a functioning understanding of the personality of the region being dealt with into a core of thought of the geographic personality of the region. By a *core of thought* of the geographic personality of the region we mean a characterization of the regional personality in terms of the *complex* of the outstanding features of the cultural or man-controlled activities *in relation to* the *complex* of the elements of the natural environment found to be significant in explaining these activities. At this point

let us make note of the fact that in Step III, during the period of assimilation, the student sought for specific geographic relationships in terms of the various phases of human activity that he discovered to be important in the region. In Step IV the student strives to see, not each activity by itself in so far as it is related to the natural environmental conditions of the region, but seeks rather to learn the *whole complex of human activities* (with their varied interrelationships and as they actually occur in the region) in relationship to the *whole complex of natural environmental conditions* existing therein. In other words he strives to *see the personality of the region as it is.* He must make the careful survey of Step III, however, before he has the apperceptive mass with which to effectively make a core of thought summary in Step IV.

In the early stages of geographic training the teacher will need to give students much careful guidance in the formulation of the simple cores of thought used at these early levels. At early levels students may well pool their group findings and thus, with the guidance of the teacher, formulate a simple paragraph summary of the regional personality. At each and every level of training the teacher's help should consist *solely of guidance in getting.* As training proceeds the student should attain more and more independent skill so that by the close of the second year of geographic training (usually at the fifth grade level) he should be able to write unaided a simple, but effective, personality core of thought of the regions which he is investigating.

The acquisition of the ability to organize regional personality cores of thought is of prime importance to the geography student. It is the major understanding which is the desired end product of all geographic unit instruction. It is the type of understanding of geographic conditions thruout the earth which should help the student to function as a more efficient citizen thruout life.

An example of a core of thought of a regional personality such as might be used at somewhat advanced levels of training follows. Switzerland, a small country in south central Europe with 15,944 square miles of area and about 4,000,000 population, has about one-half of the population on the Alpine foreland of the northern one-fourth of the area. In this northern hilly plateau country there are four hundred people to the square mile while in the higher Alpine sections there are many areas with ten to twenty persons or less to the square mile.

Sixty-two per cent of the people of Switzerland are engaged in highly specialized manufactures of articles for the most part of small intrinsic value and relatively small bulk but valuable for the skill of workmanship expended upon them. Among the leading types of manufactures which Switzerland sells to the rest of the world are such articles as watches, clocks, scientific apparatus of a high degree of excellence, fine silks and cotton textiles, electric and non-electric machinery for manufacturing and for transportation purposes, chocolate and cheese. Much hydroelectric power is used in manufacturing.

Next to manufacturing, in terms of the profits that accrue therefrom, is tourism. Switzerland is a land of many fine hotels, fine railroads, about 67 per cent of which are electrified, fine motor busses and fine hard-surfaced roads over which to travel—all planned for the comfort of the traveler. The Swiss people have become the professional hosts of the world.

Twenty-six per cent of the people are engaged in some form of agriculture. Cropping is confined to such commodities as potatoes, oats, hay, rye and some wheat. Tho carefully managed this activity yields few surpluses. Dairying and cattle raising are important branches of agriculture. When summer comes the farmer moves the cattle from the crowded valley lands to the succulent Alpine pastures. During the winter months the cattle are stable-fed in the valley. In order to preserve the summer milk surplus until the time of return to the valley land, much cheese is made on the uplands.

This human complex is related to a natural enviromental complex in which the following elements are important: three-fifths of the area of Switzerland is mountainous and the rest is hilly plateau; it has a central location in the very heart of Europe, with no sea outlet, and with an encircling mountain wall in which there are four great passes; only 12 per cent of the area is arable and much of this consists of narrow valley lands; the area lacks rich reserves of coal and iron but has proximity to European reserves of these and other raw materials essential to modern industrial life; it is a land of long cold winters of short days and short cool summers of long days, there is much precipitation and a low evaporation rate; there exists 2,500,000 horsepower potential waterpower; there are great stretches of Alpine pastures of succulent grasses; there is a great diversity of magnificent and awe-inspiring

scenery of Alpine flowers, glaciers, waterfalls, towering cliffs and narrow valleys.

This is the characteristic personality of Switzerland—the mecca of the tourists of the world—the center of world famous manufactures. No other country in all the world has just this combination of human activities in relation to natural environmental conditions.

Such an understanding of *what* are the outstanding human activities of various regions of the world and *why* people are so fitting their ways of living to the conditions of their natural environment will do far more to bring sympathetic understanding between nations than years of cramming of isolated facts of imports and exports, population statistics, and the like. It should, too, help to make the students of today more effective citizens of tomorrow in terms of wiser adjustments to the natural environmental conditions in which they find themselves.

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ROMANIAN PEASANT AND AGRICULTURE

JOSEPH S. ROUCEK
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United Romania is primarily an agricultural country, in spite of the fact that the new provinces of Transylvania and the Banat brought in considerable industries. The great agrarian reform expropriated the large landowners and thus about 85 per cent of the arable land is now in the hands of small peasant-owners and, in general, about four-fifths of the population is engaged in agricultural pursuits.

THE MIND OF THE PEASANT

The land and its possession is really the foundation of the behaviour of the Romanian peasant. As is usual with the agricultural class everywhere, the Romanian peasant is conservative. Even today villagers can be found wearing Dacian dress and building their houses just as they did when the Emperor Trajan found them. The bitter experiences of his past has made the peasant even stronger in his attachment to the soil. In fact the land, which now is his property, is a part of his being and its possession is an essential to his own dignity.

To safeguard this property the Romanian peasant is extremely cautious and slow to accept any innovations. But once he has made up his mind, he is determined to carry thru his own decision. He is of course very suspicious. Why not? For centuries this peasant was exploited either by landlords or by foreign masters and he knows well that the promises of politicians are often unfulfilled. Even the agrarian reform has not brought all the results he has been promised. But the first blossoms of a better life after the war must be evident to everybody who is acquainted with the conditions of Romanian life. It is especially evident from the whole outlook of the peasant. The private ownership even of a little patch of land was bound to raise the standard of self-estimation to a considerable degree. This change is marked by observing that the families are replacing their maize diet with wheaten bread. Now bakers can be found in villages where formerly only the towns could support such an occupation. Health conditions are better. One authority estimates that the peasant's life in other countries averages about

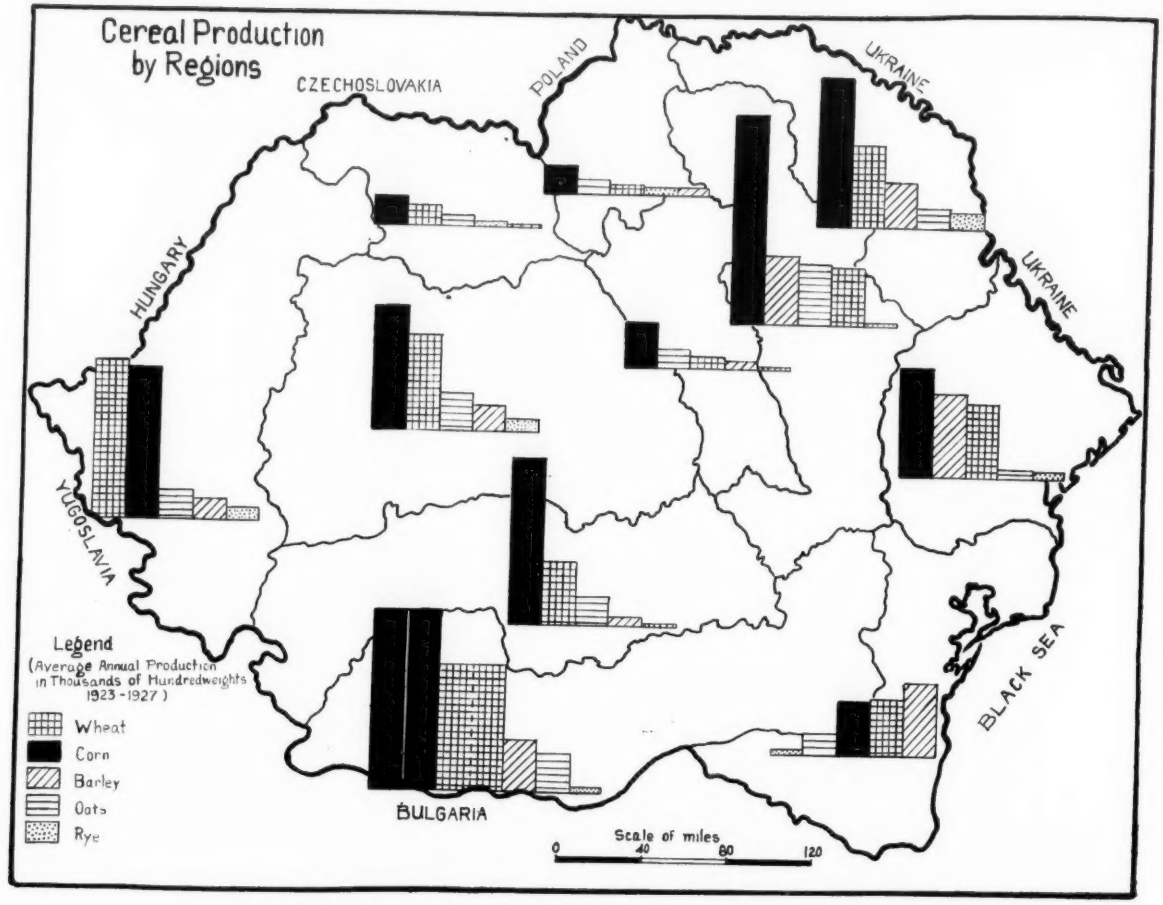

FIG. 1. Diagrammatic map showing production of principal crops.

50 years. Romania is much below that average—30 years. We do not know definitely the results of the reform but there is less alcoholism and better medical service by the State.

It is amazing that each peasant shows such great interest in schooling. This desire for new freedom is already having its effect upon old forms of leadership. The priests and the teachers were the pre-war standard authorities of any village. Today the prestige of the priest is going—very fast. The religious convictions of the peasant had fear for their basis, and with the growing acquisition of new standards many pagan beliefs and fears are now going overboard.

The growing sense of importance is reflected in something of a class consciousness in political life. The gradual formation of the National-Peasant Party of Romania, which was in power from 1928 until 1931, is striking evidence of this process. It was for the first time in Romanian history that the peasant was really represented in his government.

All ambitions of the Romanian peasant could be expressed in the phrase: "Land and Liberty." This point is amply demonstrated by the remarkable analysis of Dr. D. Mitrany in his "The Land and the Peasant in Romania."* The application of both principles came very slowly and neither is yet complete in its application.

When this world is too confusing for the Romanian peasant, he finds his way out of the puzzling situation by centering his loyalty on the Romanian Royal House. Nearly every peasant cottage in Romania contains pictures of the King and the royal personages. Tho the reproductions are usually very poor, it is evidence that the peasant is nationalistic to the core and that the King represents sentiments—something much larger and soothing than the ambiguities and difficulties of state and daily life.

AGRICULTURE

Turning aside from the psychological elements of the Romanian peasant, let us discuss the agriculture of Romania, with which the peasant is most intimately and irretrievably connected.

Agriculture is the most important source of national wealth, if we disregard the wealth of minerals, the most important of which is oil. In fact the conditions of agricultural production determine the prosperity of Romania. Today Romania is in a critical condi-

* Carnegie Endowment for International Peace, 1930.

Fig. 1. Diagrammatic map showing production of principal crops.

tion because of the low prices of its agricultural products on the world market and the consequent inability to find markets for the overproduction. Agriculture has been for centuries and will be in the future the principal occupation of the Romanian people. The soil is very fertile. It does not have to be fertilized in many places. The most fertile region can be found on the map, in the shape of an oval, between the Danube, the Carpathians and the river Nistru. This region from times immemorial played an important part in the commerce of Europe. The oldest grain merchants here were the Greeks, the Venetians and the Genoese. Thru the trade of grain,

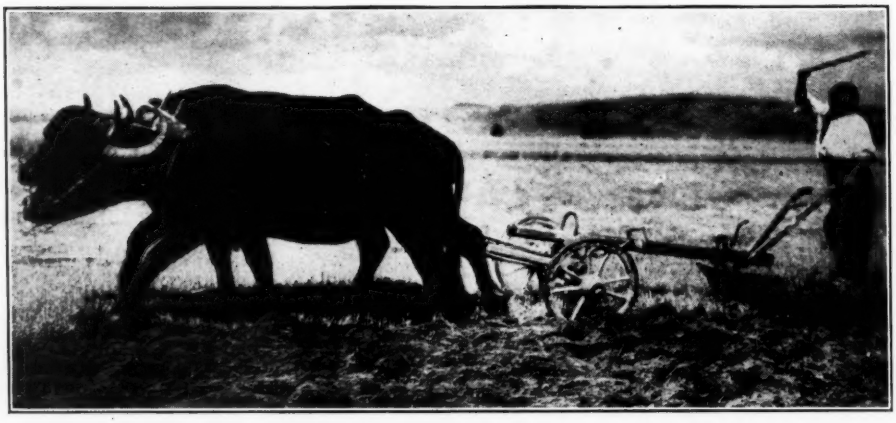

FIG. 2. Plowing the field for the crop. Courtesy, Romanian Legation, Washington, D.C.

carried on the Danube, Romania has been connected with the countries of the west.

But the importance of Romanian agricultural production did not begin until the nineteenth century. The Turks used it for the outfitting of their armies up to about 1830 and with the signing of the Treaty of Adrianople, the trade rapidly expanded. While before the World War Romania ranked sixth among the wheat-exporting countries of the world, after the War it took seventh place, i.e., after the United States, Russia, Canada, British Indies, Argentina, and Australia.

Variety in Production. The soil and climate make for a considerable variety in the forms of production. The cultivation takes place in three regions: the upland, the hills, and the plains. The climate differs in all three regions. Oats, as the plant resisting atmospheric

changes, is cultivated in the northern regions. Maize, tobacco, and grapes represent the products of the south. On the plains and outer uplands we find the fields of wheat, barley, and maize. On the hills, the slopes of the Carpathians, in Moldavia, the Transylvanian tableland, we met with vineyards, fruit-trees, and grass-fields alongside fields of rye, maize, and oats. In the mountains are forests and pastures.

FIG. 3. Harvesting grain by primitive methods.

But sometimes the great differences in temperature and excessive rain-fall are unfavorable because they are followed by droughts. And it is unusual that the least favored part of the Romanian plain as far as rainfall is concerned, is really the best place for cereal cultivation, because here we meet with the famous "black earth" (*chernozium*).

Cereals. The cultivation of cereals covers about one-half of the cultivable surface of Romania. The Old Kingdom of Romania, Bessarabia, and the plains of the Banat and Crisana, are the three territories forming the great granary of Romania. The cultivation of maize and wheat takes first place in agriculture. Maize is the prin-

cipal food of the people and the poorest people can be seen everywhere with their simple food *mamaliga,* which serves as the only nourishment at all times of the day and the night. Maize also serves as a fodder for the cattle. Wheat and maize are the principal products of the country for export. The districts contributing most are Old Romania and Transylvania, while Bessarabia and Bukovina take third place.

FIG. 4. Hauling in the wheat harvest. Courtesy, Romanian Legation, Washington, D.C.

But it must be noticed that the surface devoted to wheat has not increased in proportion to the enlargement of Romanian territory. To make a general statement, the area under wheat has diminished and more attention is paid to maize, oats, and barley. This is due to various factors, such as export duties, price restrictions, effects of the reform, etc.

Rye is cultivated much less extensively than wheat and only from 2½ per cent to 3½ per cent of the cultivated soil is devoted

to it in Greater Romania. The Romanian does not appreciate rye very much, preferring black bread. The straw, however, because of its elasticity and its length, is used to tie various objects. It is also woven and utilized for the roofing of houses.

Barley is of much greater importance than rye to Romania—the area under cultivation being about 18 per cent—Old Romania leading the way. It is used mainly for the preparation of pearl-barley, for the production of beer, the distillation of alcohol and as nourishment for cattle. Straw is generally replacing grass and hay as fodder. In the world market, Romanian barley is sought by brewers.

Fig. 5. Threshing the grain crop. Courtesy, Romanian Legation, Washington, D.C.

Oats and its straw serve primarily for the nourishment of horses. The peasant claims that the fowl fed on oats lays more eggs. Oats is mainly cultivated in Bukovina and in Old Romania as well as in Transylvania and Bessarabia (measured by area).

Colza (rape) is the most important of the textile and oily plants, and is cultivated especially in the plains of Muntenia, Wallachia and of the river Theis in Old Romania. It is the first plant which is harvested at the commencement of summer. Its yield is very

problematical, as it is a very sensitive plant to cold. Millet is of much less importance. It is cultivated principally in Bessarabia for domestic purposes.

Vegetables. Vegetables form the third group of plants in Romanian agricultural production. The important ones are: kidney-beans (fasole), peas, lentils, beans. As in Germany, these plants are cultivated on a large scale with other crops, especially with maize.

FIG. 6. At work in a tobacco field. Courtesy, Romanian Legation, Washington, D.C.

Sugar-beets, Tobacco, and Potatoes. These are the principal industrial plants. Small Bukovina cultivates proportionally the most plants of this group; Transylvania brings in the largest quantities.

Cultivation of the sugar-beet was increased considerably after the War, Old Romania being the principal producer, followed by Bukovina and Transylvania. The Bessarabian participation in this production is very feeble. The cultivation of tobacco is a state monopoly of Romania, and is mainly centralized in the Old Kingdom. None is produced in Bukovina. Its products are manufactured and then sold by the traders with concessions from the State. The cultivation of potatoes is scattered irregularly thruout the country. It does not play a very important rôle, Bukovina being the largest producer.

Vineyards and Orchard. The addition of new provinces to Romania gave prominence to the products of vineyards, and the exports could be even more increased if standardized types were cultivated.

The country is well stocked with fruit, due especially to the Bessarabian production. Shelled and unshelled walnuts, prunes, and dried cherries are exported. The chief fruit is the plum.

Livestock. The number of livestock is radically reduced because of the war losses. The present increase is very slow, the condition being due partly to the increasing popularity of motor vehicles. The typical Romanian horse is small, hairy, very persevering, but not very strong. The ox is used also for field work, and even the construction of the carriages reflects his presence. The government is trying to extend the foreign market for cattle, such extension being of particular importance to Transylvania which lost its prewar markets. The growing number of swine is especially noticeable.

Fish. In conclusion, we must consider the importance of fish, which is one of the principal foods of the people. The country possesses, with the exception of the great fisheries of Volga, the greatest fisheries of sweet water in Europe. On the other hand, the maritime fisheries are insignificant. In good years more than 33 million kilograms of fish are gathered annually. In this connection the Danube is the chief provider of fish, its fisheries being the property of the State. But the production, especially in the delta of the Danube and in the Black Sea has by no means reached the production possibilities. Only primitive methods, on the whole, are used. Transportation facilities are lacking. The chief fish are the carp, sturgeon, silurid, sterlet, mullet, pike, and perch. Trout and salmon can be taken from the mountain streams. Romanian caviar is very well known abroad, tho it is often sold as Russian caviar.

WHAT SORT OF INTERNATIONAL BOUNDARY IS BEST?

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MAN'S INTEREST IN BOUNDARIES

Men have a special interest in boundaries. Many a fight has followed a dispute over where the limits of a man's property is, or a tribe's or a country's. Repeatedly the fight has been over a strip of insignificant value. But they say, "Our honor is at stake," or "Give them an inch and they'll take a mile," or "Sometime we may need that land."

The boundaries of the various countries have been objects of particular solicitude and many of the international disputes have arisen in connection with their location and characteristics. Right now observers are watching closely the tension between Russia and Poland over a portion of their boundary, and Germany's desire that its boundary be "corrected" at the northeast so that East Prussia shall not be separated from the rest of Germany by the Polish Corridor to the Baltic.

Nearly every mile of the world's more than 222,000 miles of international boundary was located where it is as the result of earnest efforts on the part of leaders who had certain objectives in mind. It is surprising, in view of their great influence on the world's welfare, that international boundaries have received relatively so little scientific study. Now that there are numerous well-trained geographers, however, helpful studies of boundaries should be made, as boundaries are largely geographic.

Military leaders and civil engineers have given some attention to boundaries, and there are a number of books written from their point of view. Since they have almost monopolized the discussion, the public has rather widely accepted the opinions of the militarists as to what kind of boundaries are best.

TYPES OF BOUNDARIES

From the viewpoint of international peace the various types of boundaries are differently evaluated than from a military point of view. And even from the military viewpoint, the changes in methods of warfare which have taken place during recent decades

render obsolete numerous conclusions about boundaries that were arrived at decades ago, and which are still widely held.

A comprehensive discussion of the several types of boundaries and their relative values from various points of view requires much more space than is available. Hence merely a summary of some of the more interesting aspects of the question is attempted.

Of the many possible ways of classifying boundaries a few merit especial consideration. First, boundaries are of different kinds from the view of physical geography; coastal boundaries, river boundaries, mountain boundaries, desert boundaries, lake and marsh boundaries, and finally artificial boundaries drawn thru fertile plains. Of the world's international boundaries at present about a half are coastal and a fifth each artificial or mountain and most of the remainder are river boundaries.

In respect to the density of the population separated by the boundary, there are a number of kinds also, for example, some boundaries are situated in areas where there are no people, as in the sea, or in a lofty mountain range. Others are in sparsely settled areas, such as deserts, near-deserts, most mountain ranges, marshy tracts and tropical jungles. Next are those in well settled areas, and finally those in densely peopled areas. A subdivision of the latter may advantageously be made: (1) densely settled primarily agricultural regions, such as India, China, and parts of eastern and southeastern Europe; and (2) densely peopled areas that are active industrially and commercially, such as most of western Europe.

DEFINITENESS OF BOUNDARIES

Boundaries differ so much in definiteness and geographical permanence of location that these aspects merit consideration even in a brief discussion. Artificial boundaries are of course only on paper until they have been demarked on the land. Then however, they often become quite distinct, and if they are followed by fences, as are considerable sections of the world's international artificial boundaries, they become conspicuous.

The sea coast has commonly been thought of as affording a distinct and permanent boundary. But since the ocean has become a great highway the coast has lost a considerable share of its distinctness as a boundary. Indeed, as fishing is usually best near shore, nations have long claimed a portion of the adjacent sea and have tried to keep fishermen of other countries from fishing there.

At present, indeed, by international agreement, a boat caught fishing in the territorial waters of another country is subject to seizure and the confiscation of at least the fish aboard.

But how far do the territorial waters extend? There have been unending disputes concerning their limits. A special feature of the delimiting of the territorial waters is the fact that every island, or even mere rock extends the boundary that much further.

River boundaries seem definite at first, but a closer view reveals that they too are rather vague. The center of the main channel is commonly specified as the boundary, but the position of the main current varies with every rise and fall of the water, and often shifts from one side of an island to the other. Then too most rivers erode rapidly enough so that the stream soon shifts. Mark Twain's experience as a Mississippi River pilot led him to declare that no steamer ever went from New Orleans to St. Louis and back on the same course, as in the meantime the river had shifted its position appreciably.

Boundaries in mountain ranges commonly follow either "the crest of the range" or "the summit of the drainage divide." Both of these statements seem to locate the boundary precisely, but when an attempt is made to follow the line indicated, many difficulties arise. Drainage divides are ordinarily flattish areas upon which it is often very difficult to say which way the water would flow if there were water there to flow. In the arbitration by the British of one boundary dispute numerous barrels of water were laboriously hauled long distances and were poured upon the ground to see which way it would flow. But unfortunately, in a considerable part of the area the ground was so flat and the soil so thirsty, that the water disappeared without solving the problem as to where the drainage divide was located. Few mountain ranges possess only a single line of highest peaks. Where is the crest of the range situated if the highest peaks are scattered about rather irregularly?

PERMANENCE OF BOUNDARIES

As to geographic permanence, the shifting of rivers has been mentioned. Drainage divides also often shift rather rapidly, and the sea coast is constantly changing. Islands are cut away, bars are built into islands, deltas extend into the sea, or the sea advances upon the land. Since the middle ages most of the Zuider Zee, Netherlands, was formed, and since mankind has been on the earth,

Great Britain has been separated from the mainland of Europe. Conversely, the Mississippi River has filled in a long arm of the Gulf of Mexico which formerly extended as far north as the mouth of the Ohio River. In Asia, a large share of western Siberia has become land since man appeared, as is true also of much of the Amazon Basin in South America.

Many mountain ranges too are said by geologists to be younger than man, and the greatest, the Himalayas, is believed to be only slightly older than man. Our ancestors have seen, therefore, rather profound changes on the earth, and if mankind lasts as long as some leading geologists predict, our descendants will see even greater changes. The illustrious T. C. Chamberlin, formerly chief geologist of the U. S. Geological Survey and later of the University of Chicago, saw adequate reasons why we should plan on a future duration of civilization comparable in length to the total past duration of any kind of life on this earth, many hundreds of millions of years.

Hence when a long time view is taken, none of the natural boundaries are geographically permanent. The markers along artificial boundaries can be replaced, however, as required. Hence artificial boundaries become the most permanent geographically as well as the most precise.

Boundaries are classified also as to historical permanence. None of the present international boundaries have lasted as much as a thousand years. Two largely artificial boundaries, that between Germany and Netherlands thru a marshy tract, and that between Spain and Portugal thru a semi-desert, are as old as any in Europe.

The coast has not afforded a permanent boundary either, as one of the great principles of political geography is that strong countries expand into the sea, annexing islands and even parts of the coast across the water. Examples are the annexation of Corsica by France, of Sicily and Sardinia by Italy, of numerous islands by Denmark, and of the Hawaiian Islands by the United States. Annexations of parts of the mainland across seas are illustrated by the French, Italian, and Spanish possessions in North Africa, the fact that Sweden long controlled Finland, and Denmark controlled Norway.

Nor have mountain ranges been permanent boundaries historically, partly because before the era of modern transportation, when

all travel was slow, they were far less serious barriers than they have come to be since railroads are numerous. On horseback or in a wagon, slopes can be readily ascended which would stop the most powerful locomotive, by causing the drive wheels to spin.

The Pyrenees, the most distinctive range of Europe, as a result of its length, steep-sidedness and lack of even a single significant pass, has served as an international boundary only during the modern era. The Caucasus, the loftiest European range and having only one fair pass in 600 miles, nevertheless has never served as an international boundary.

Rivers have seldom persisted as international boundaries for long periods, partly because of the disputes their shiftings cause, but more often because they tend to unite the people of their basin rather than to separate them. This is because the river or its lower valley forms a highway, toward which the tributaries and the force of gravity direct the flow of commerce and the movements of people.

In the past nations have risen and fallen, and in so doing there have been numerous changes of boundaries. Forces are at work now, however, that reduce greatly the prospect of frequent changes of boundaries in the future. One of these is public opinion which interferes with conquest or even with peaceful annexation. Public opinion has become a very powerful agent, and is effectively reinforced in the richer nations by the withholding of financial credit, and by the poorer peoples by the boycott against goods made in the country subject to criticism. The great increase in the influence of public opinion in recent decades suggests that it will grow still stronger as popular education extends, and as isolation is reduced.

The growing exchange of goods and ideas, and the bringing of all parts of the world more up to a level so far as political and social ideals are concerned, which results in large part from this exchange, also works for stability of boundaries. In the future, the countries of the world may resemble the states of the United States in respect to the historical permanence of their boundaries. There is almost no prospect of any significant change in the boundaries of the states, chiefly because with the free movement of people and goods across them there is little incentive for changing the boundaries.

Boundaries differ also as barriers. Some kinds, such as those in the wide sea or in a very lofty range such as the Himalayas are

very hard to cross. Others, as in smaller seas or lower ranges, may be crossed by going around, or at certain places, as in mountain passes. Various transitionary types might be recognized, ranging from the hardest to the easiest, the latter being an artificial boundary or a small stream in a densely peopled area possessing abundant transportation facilities. As legal barriers are often far more serious than physical barriers, legal restrictions merit mention here. The physical boundary may be supplemented by legal restrictions such as tariffs and bars to immigration, which interfere with trade and the mingling of peoples, and the exchange of ideas. At the other extreme there may be no legal interference to these exchanges.

Another way in which boundaries may be advantageously classified is as to the characteristics of the people on either side. These people may be highly different, differing perhaps in race, language, social ideals, and economic conditions. Or, at the other extreme, they may be alike in all these respects, essentially one people.

Now that we have seen something as to the various types of boundaries we may consider their evaluation.

THE EVALUATION OF BOUNDARIES

Treaty makers in the past have often considered that rivers afforded excellent boundaries, and hence rivers have commonly been specified as parts of the boundary. They were definite from the viewpoint of the treaty makers, and did not need to be surveyed before they could serve as boundaries, but from the fuller knowledge of today they are seen to be undesirable boundaries because their shiftings lead to many disputes as to the boundaries' actual location. Moreover, the essential unity of the river basin is often greatly hindered. Presumably as oil and other mineral wealth is exploited along boundary rivers disputes concerning the boundary's precise location will increase. The increasing utilization of water power also increases the undesirability of rivers as international boundaries. As a result of all these defects, river boundaries have been recently declared by one competent writer, Lawrence Martin, as "the worst possible type of boundary."

The sea coast has commonly been thought of as the best type of boundary because the sea has been hard to cross. It is asserted that Napoleon once said that he would gladly give his legs and his arms if, in exchange, he could land an army in England. It was

commonly said for some years before 1914 that the English Channel was worth a million soldiers to Great Britain. In 1914 it was worth more than that.

But the sea is no longer the protective agent it formerly was before there were effective airplanes, air ships and submarines. No country can now depend on the sea for protection from attack. Instead they must rely on international agreement and the power of the pressure brought by aroused public opinion in other countries.

Furthermore, from a military point of view a sea boundary is a disadvantage in war because it often interferes with attack more seriously than it aids in defense. After the first few weeks of the World War, for example, Great Britain was seriously handicapped by the English Channel. Had there been land there instead of water, the more rapid movements of men and supplies that land transportation permits would have been very helpful indeed. Moreover, the submarine menace on the Atlantic coast would have been much reduced by the greater distance required from the base of submarine operations.

In times of peace, a sea boundary is even more undesirable than in war, for the sea under present conditions interferes with the exchange of goods and ideas with neighbouring countries, which is now so desirable.

From the viewpoint of the nationalist, however, the sea boundary is desirable, as the nationalist wishes his country to be distinctive, differing from other countries in customs, language, and even in race and religion, and to be economically self-sufficient. The collection of tariffs is also made easier by a sea boundary because goods can enter readily at only a few points, since large ships have come to prevail, and there are few harbors adapted to their use. Much evidence indicates, however, that the nationalistic objectives are unwise. If so, the type of boundary which encourages these erroneous objectives is undesirable.

The fact already mentioned, that strong countries commonly expand into the sea to annex islands or across the sea to annex coastal lands adjacent, also suggests the unsatisfactoriness of sea boundaries.

Long, steep-sided and lofty mountain ranges have commonly been thought of as next after the sea coast in desirability as boundaries. But they are isolating agencies, and unquestionably isola-

tion is undesirable from the broadest point of view. Furthermore, they no longer afford much protection from attack, as they can now be promptly gone around, with few exceptions, or otherwise surmounted.

Since public opinion in other regions has come to be a powerful agency to restrict invasion, an isolating barrier boundary such as the ocean or a lofty mountain range which is crossed only with great difficulty has become undesirable for an additional reason. Such barriers, by reducing contacts with other regions reduce the interest of other people in that area, and hence make it harder for international public opinion to be sufficiently aroused to exert its full influence. A barrier of sea or mountain has come to have recently a protective value of slight worth as compared with that exerted by the fear of boycott and economic pressure against the aggessor.

Since it appears that each of the other types of boundary have very serious drawbacks, and lack advantages sufficient to counterbalance the defects, let us turn to the artificial type. Artificial boundaries are the most precise, distinct, and geographically permanent. They are also the most desirable from the standpoint of a ready exchange of goods and ideas. The fact that they afford least protection against attack is no longer a serious objection, now that attack is retarded by other influences much more effective than barrier boundaries. The further fact that they interfere with the collection of tariffs by permitting goods to enter a country at many points instead of at only a few, where customs officials can readily impose the tax, is advantageous by working towards the lowering of tariffs, and hence toward a more ready exchange of goods. Artificial boundaries tend to weaken the spirit of nationalism, but abundant evidence indicates that nationalism usually does more harm than good.

CONCLUSION

Hence it appears that the type of boundary commonly considered to be the poorest is now the best. This is a result of the recent changes in transportation, communication, and warfare, and the great increase of interest in areas beyond one's own locality. If the artificial boundary is drawn thru areas of few people and little human interest there will be less difficulty along it, of course, than where it is drawn thru a densely settled area. But even in the

latter case, if it is located by full agreement between the countries delimited, it is better than any other type of boundary in that situation, because it is most conducive, by its non-interference with the movement of goods and people, to the development of similar standards of economic welfare, political ideals, and mutual respect on both sides of the boundary. In so far as these are attained, not only is friction reduced but the people in both countries are benefitted.

In other words, Belgium with boundaries which are almost exclusively artificial and drawn in well settled areas is exceptionally fortunate in times of peace and Germany is better off than France, which is more isolated by sea and mountains. Spain, sufficiently isolated from the rest of Europe by the Pyrenees and the sea to have given rise to the phrase "Africa commences at the Pyrenees" is backward partly for that very reason.

FIELD TRIPS IN UPPER-GRADE GEOGRAPHY

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VALUE

The first requisite for doing any job well is knowing that it is worth while. In order to conduct field trips successfully, the teacher must feel that there are values coming from this form of instruction than can not be obtained in any other way. What are some of these values? Those that apply only to special types of excursions need not be mentioned here. There are many, however, that can be stated as general results to be derived from all well-planned and well-conducted field trips.

1. Much more interest than in the textbook study.

2. Since the trips deal with real life, they make the pupils realize the practical nature of geography and its value in explaining their own environment.

3. They give real experiences and resulting mental pictures that help to interpret the abstract material of the textbook not only on the special subject of the trip, but many others as well. This connection between geography and real life is the most important value of all.

4. They stimulate further interest and reading on the subject of the field trip and others suggested by the discussion.

5. They arouse the interest of parents and others outside the school and often lead to further excursions under the guidance of parents or friends.

6. They form a connecting link between school and community and arouse more real interest in the school affairs than any other form of instruction.

REASONS FOR NEGLECT

Why then are they so neglected? Why do superintendents not require them, and courses of study give them a large place in their program? The reasons are many and varied. A few that seem to assert themselves most frequently are:

1. The teacher was not herself taught thru field trips and therefore has no sense of their real value thru her own experience.

2. The time required is longer than a recitation period and

means a readjustment of schedule, or even utilization of out-of-school hours.

3. The teacher has a fear of maintaining discipline poorly when the class is outside the schoolroom.

4. The superintendent doubts if they are worth while and may even forbid them altogether.

5. The teacher herself is unwilling to give the extra time and effort to properly plan and carry out a field excursion.

All these obstacles may be overcome by a teacher who is really in earnest. She may lack experience; so did all the first time. She may feel her knowledge is meager, but she may prepare in advance. If the school program will not permit taking school hours, she may try voluntary trips during the noon hour, after school, or on Saturday. If they are well planned and successful, nearly all pupils will join in the end. The discipline need not be more difficult than in the classroom, if the time is well filled and pupils busy with their own observations. Few superintendents will forbid an enthusiastic teacher attempting one field trip if shown a careful plan of procedure. After that they will judge by results.

KIND OF TRIPS

Convinced of their real usefulness and determined to have them, the teacher should next survey the community, list the possible field trips, and select the best for her work. The kinds of trips possible might be put under three heads: (1) physical, (2) economic, (3) miscellaneous. Under the first head come many valuable trips possible in nearly all communities and especially useful in rural schools where other kinds are often not available. The following are samples of trips or series of trips, that may be taken.

1. A trip to gain understanding of geographical terms: mountains, plains, plateaus, river valley, water shed, delta, cape, bay, peninsula, erosion, deposition, weathering, etc. Examples of all of these may not be within reach, but on a small scale most of them will be illustrated.

2. The work of a stream is a valuable topic where a stream is close at hand.

3. The effect of the ancient glaciers upon your own locality; an interesting trip where the teacher herself can become informed.

4. Soils and soil making; an important topic with direct connections with much of the geography work.

5. Topographic maps; if the map is available for your locality, outside trips with map in hand give a much better understanding of maps in general, as well as land and water forms and other topics.

6. Fossils and their story; if fossils of any kind are found, they may lead to a study of the past history of the region, and much geographical knowledge.

Economic Excursions

The kinds of economic excursions are too numerous to list and will vary with the locality. In the larger industrial centers it is necessary to select carefully those that best fit our work. The small villages or rural communities do not offer so many opportunities. We should not overlook, however, such possibilities as dairy farms, brickyards, sawmills, quarries, canneries, etc. If none of these are within reach, a visit to a grocery or general store may be valuable if well planned.

Miscellaneous

Excursions are possible in some localities that can not be readily classified as either physical or economic or may be combinations of both. In the larger cities, teachers in the well-to-do sections have taken their classes to the poorer parts of the city. Such trips have aroused much interest and discussion, but would seem rather difficult to plan and conduct.

Fishing ports, or ports of any kind, can be visited. A study of the shipping, or the docks, warehouses, and equipment will always give much valuable information.

Lighthouses and weather bureaus are two others that come to mind.

Procedure

Methods in planning and conducting field trips will vary somewhat with circumstances but some general statements are applicable to any situation.

1. From the possible excursions select those that correlate most closely with your school work.

2. Plan for the date of the trip and be sure to allow time enough to do it well.

3. Go over the ground carefully, studying the possibilities arranging route, and noting things to be discovered—in fact, every

detail in advance of the trip. Leave nothing to chance. Know what is available and where it is without being obliged to hunt for it.

4. Have an aim. Motivate excursion by carefully planned work leading up to it.

5. Divide classes into groups small enough to see and hear without difficulty.

6. Avoid the lecture method. Put in the hands of the students challenging questions and problems to be solved by actual observation.

7. Direct the observations and make sure that pupils understand what they are seeing.

8. When possible, bring back illustrative material for future use.

9. Follow up by further discussion in the classwork. Make the trip count for much by connecting the experience with future work in every possible way.

Perhaps this discussion may be more helpful if we give in detail real instances of certain types of field trips as they are taken in the upper grammar grades.

"WHAT THE ANCIENT GLACIERS DID FOR FARMINGTON"

This is an acount of an actual trip taken by a seventh grade. The procedure followed was much the same as that described previously in this article.

The trip was selected because a study of the locality had shown some very interesting and easily understood effects of the passage of the ancient ice sheet over the site of the town. Moreover, these facts had a very definite connection with the life of the community.

A date was selected when the trip would best correlate with the geography work then being given. The program was so arranged that an hour and a half could be devoted to it.

The teacher went over the ground a day or two before the trip with a friend who knew and could explain the glacial topography. The points best suited to her purpose were noted, and every detail of the trip carefully planned. The trip followed almost exactly the outline she had prepared.

On the way to the chief vantage point several interesting things were mentioned, more to keep the attention of the class than because they were related to the subject of the trip. The longest stop was made upon a ledge overlooking a valley. The class was asked

to find evidences of the former glacier. The following points were discovered easily:

1. The ledges were rounded and smoothed.
2. Some of the ledges showed well-marked parallel scratches running nearly north and south.
3. A little way down the slope was a wall with stones of rather large size. These were discovered to be of entirely different material from the bedrock. Further evidences were to come later.

As the class stood looking out across the valley, the teacher explained that the geologists thought it the bed of an ancient glacial lake and pointed out its probable extent.

Moving down the valley slope, the teacher selected another point of view with the class standing on one of the terraces of the ancient lake. More observations led to the rather exciting discovery that two of the town's highways were built upon terraces and that the railroad that wound northward up the valley followed another. In order that these terraces might be clearly seen as the work of nature and not man, the group moved to the floor of the valley and faced back the way they had come. Five terraces were then noted, two of which passed thru a pasture where man had not disturbed them in any way.

The pupils were then asked to pick up rocks for examination as they had been doing frequently along the way. Not a rock could be found, but stretching across the meadow, was a forty-nine acre field of corn perfectly level and of perfect soil. The explanation of the lack of rocks was left for classroom discussion later.

On the return trip to the school building a different route was followed. Two moraines were pointed out as sources of sand and gravel for local masonry work and road-building.

One, at least, of the follow-up lessons made use of lantern slides made from pictures taken along the route altho on a different day. Rocks from the gravel pit, polished and striated in characteristic glacial fashion, also were used to make the discussion interesting.

Another helpful lesson that might precede or follow this trip would be based on the broader topic—What our state owes to the ancient ice sheet. In Maine the points to be made would be:

1. A rather thin soil for the most part, but with fine quality in the valleys.
2. 2,500 beautiful lakes, all glacial in origin.

3. A depressed and indented coastline resulting in fine harbors, many islands, and beautiful coastal scenery.

4. Abundant waterpower resources due to swift rivers that fluctuate but little because of the lakes in their courses.

5. Great glacial cirques in the side of Katahdin, Sugar Loaf, and other high mountains, that add much to the rugged inland scenery.

A PAPER MILL

As our second example of a real field trip, let us select a manufacturing establishment of considerable size, and visit a paper mill. Many more difficulties must be overcome to make really successful an expedition of this kind. On the teacher's preliminary visit to the plant he discovered that many of the guide's explanations were lost in the noise of the machinery and that the fact that all machines were closed in made it hard to understand the purpose of each part. To help overcome these obstacles, he had an interview with a friend who understood paper-making and who explained it well. From the crude diagrams made during the conversation, a more finished chart was made giving the steps in logical order. The class studied this chart in advance and on the day of the visit to the plant, the guides followed the steps as the chart indicated. This made the whole process fairly well understood. So interested was the company in the project, that two of the department superintendents were detailed as guides, and the class was divided into two groups for safety and ease in explanation. The trip was entirely successful under this plan. The teacher himself remarked that altho it was his third trip thru a paper mill, he had never clearly understood the process before that day.

Another step toward a better understanding of this industry was the preparation of an exhibit made in a local mill. Boxes and bottles were prepared for the purpose and a foreman gladly gave samples from the raw materials to the finished products. The exhibit as planned by the school was as follows:

1. Sulphur
2. Marble } for making the acid
3. Pieces of poplar and spruce wood
4. A bottle of chips as they come from the chipper
5. A bottle of stock after cooking
6. A bottle of stock after washing
7. A bottle of stock after screening
8. A bottle of stock after bleaching

9. A bottle of stock after bleaching and coloring
10. Samples of finished paper of different kinds

Pictures of a digester, the inside of a chipper, a bleacher, and a large diagram of a paper machine were obtained from a different source and added to the exhibit later.

STUDY OF A GREAT PORT

As our final illustration of typical field work, we may examine the possibilities of the study of a seaport. A small port will furnish abundant material for at least one good field trip. If a rather large port, such as Portland, Maine, considerable observation may be well worth while. The following plans were evolved from the classroom discussion of a group of experienced teachers in the summer session. The instructor first wrote directly to the directors of the port for information. The material came promptly and proved to be just what was needed. Among the most useful maps and pamphlets were the following:

1. A map of the harbor giving in detail just the information needed
2. A pamphlet entitled "World Ports" dealing largely with Portland but containing many valuable articles on ports in general
3. Another booklet called "The Port of Portland"
4. "Maine," Port Series No. 1, issued by the War Department (Washington)

After careful study of the materials, three trips were planned. A few facts about all three will perhaps be more helpful than one in detail.

How a Harbor Is Made Safe and Convenient for Shipping. This trip was suggested by a textbook description of a perfect harbor. The purpose was to find how near Portland came to being an ideal harbor. Having listed the characteristics, the class were to go to Cape Elizabeth, where a good view of the harbor could be obtained, and with map in hand check every point.

The Equipment of a Great Port. The second plan was suggested by an excellent article entitled "Facilities that Should Be Provided in a Modern Port." The writer had listed ten necessary facilities and five more desirable. The Maine State Pier was selected as the best place to visit for checking up the writer's fifteen points. This pier has a well equipped immigration station as well as all the other equipment of a great pier.

Activities of the Water Front. An hour studying the activities of the water front was the third plan. The class were to move from dock to dock, list the incoming and outgoing commodities and learn, if possible, their source and destination. The *Portland Press Herald* column called "On Land and Sea" was to be used in the discussion following the trip to check up the facts gained by observation.

Few exercises in geography can give so many real geographic principles or reveal so many interesting facts about the state as a clear understanding of the exports and imports.

CONCLUSIONS

Probably it should be conceded that no form of instruction requires so much care in planning, conducting, and in the follow-up work as do field trips. They are much like the little girl of childhood rhymes who "when she was good was very, very good and when she was bad she was horrid." But they are well worth any effort necessary to insure their success. Their usefulness is not for the moment only but over and over again they will give experiences to illustrate and motivate future work. There is no real substitute for them.

TEACHING THE RECALL OF WIND BELTS AND WIND DIRECTIONS

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"Yes. When you explain it, I understand it. But I cannot remember it!"

Ghosts of many past experiences must arise in the mind of the reader when he sees this only too familiar statement. Too frequently is the thought uttered by students when certain topics are treated in the class of physiography, general science, or commercial geography! Almost invariably is it expressed when students are applying themselves to the subject of the location of the standard wind belts of the world and the direction in which the winds blow. The difficulty in recalling this knowledge is not peculiar to high school students. So often did the writer hear the initial statement while teaching winds to students, even those who were teachers enrolled in a college extension course, that he finally evolved the following method of practically insuring the power of recall of these large facts concerning the wind belts of the world.

The location of the wind belts of the world and the direction of the winds is taught in the usual manner so that the topic is clearly understood by the students. Then problems are presented that require the use of this knowledge. It is at this point that one usually hears, "I understood it when you explained it, but I cannot recall it." Thus far we accomplish two objectives: (1) assuring comprehension of the matter and (2) forcing the recognition of a difficulty and the consciousness of a weakness. Now the class is ready for the plan we have used.

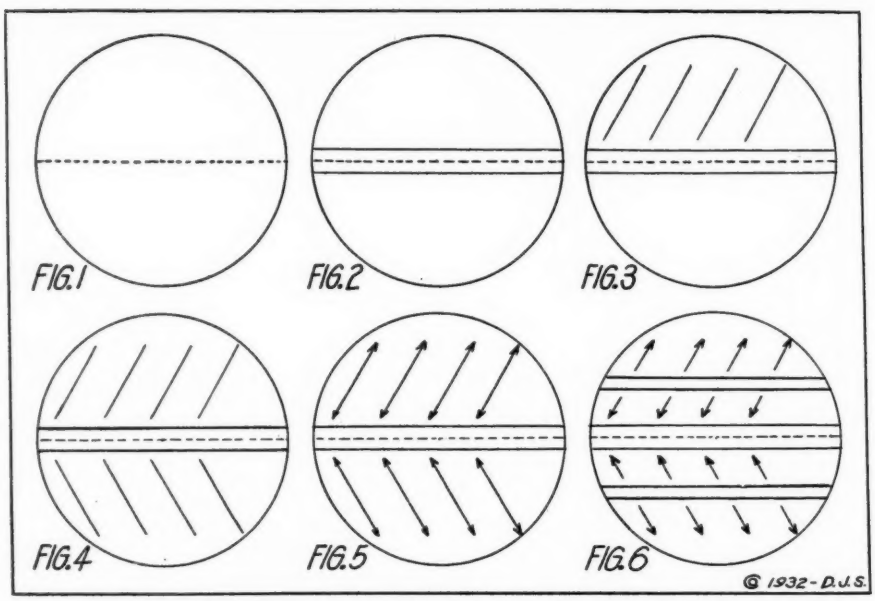
By judicious questioning several important points are contributed by the class, e.g., (1) the first step is to draw a circle to represent the globe, (2) if the arrow-heads on the lines representing the winds in the westerlies and trades belts were ignored, we find that the lines slope in the same direction, (3) there is an alternation of wind and calm belts, etc. Finally the following crutch can be evolved:

1. First draw a circle with a dotted horizontal line to represent the equator. See Figure 1.

2. A little to the north and the same distance to the south of

the equator draw two solid lines parallel to the equator. These lines mark the boundaries of the doldrums, a belt of calms. See Figure 2.

3. In the northern hemisphere, up to the doldrums, draw a number of slanting lines parallel to each other. Just follow the normal tendency of drawing slanting lines to recall the direction of slant (downward from right to left). Experience has shown that when a person is told to draw a slanting line, invariably he draws it in this direction. Furthermore, the normal slant of handwriting



STEPS IN RECALLING WIND BELTS AND WIND DIRECTION

is in this direction. This is brought out from the class and emphasized. See Figure 3.

4. Draw slanting lines in the southern hemisphere, but reverse the direction of slant (downward from left to right). See Figure 4.

5. Place arrow-heads at the two ends of every sloping line. See Figure 5.

6. About one-third the distance north of the doldrums run an eraser across these slanting lines, parallel to the equator, thus forming a space about one-third of that marking the doldrums. Show the boundaries of this erased space with two solid lines parallel to the equator. Do this for both the northern and southern hemispheres. These spaces mark the locations of the horse lati-

tudes. They separate two wind belts; the trades near the doldrums and the westerlies nearer the poles. See Figure 6.

7. If we wish to go further, we can label each belt of calms and winds with its appropriate name and place the degree of latitude just outside the circle forming the globe (7½° north and south of the equator for the doldrums; 30° to 35° for the horse latitudes). However, outside of this step, the student has learned a means of remembering how to locate the wind belts of the world and the directions in which these winds blow.

Reading all these words may make the process seem complicated. In practice it usually does not take more than ten or fifteen minutes to make the procedure well understood and remembered by most students.

BARBADOS AND FISH

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Barbados is one of the most densely populated areas of the earth's surface. It has approximately 168,000 inhabitants, a density of 1000 to the square mile. Egypt, the Nile valley and delta, is more densely populated, with slightly over 1000 people to the square mile of cultivable land; Porto Rico is not a near rival but has 450 persons to the square mile. The density of population in other parts of the world has been increasing, but this increase is largely a concentration in cities, and the numbers, despite such commercial and industrial background, do not attain the densities of these, almost exclusively agricultural, tropical regions. In Barbados, in Egypt, in Porto Rico the land supports the people.

In Barbados the fact that such multitudes can maintain existence chiefly from agriculture is made more surprising because so much of the land is devoted to sugar cane plantations. Practically all of the white population of Barbados lives in Bridgetown, the harbor city. There also are found nearly all the Negroes that get a living from the commercial activities of the island. As Bridgetown has a population of approximately 14,000 it is obvious that the remaining 154,000 or over 900 to the square mile are maintained by the land or get their support from the surrounding seas. On the

land the Negroes are laborers in the sugar plantations and cultivate small plots of cassava and bananas, called spots, around their cabins. Numbers also resort to the sea for fish.

It is a commonplace of commercial geography that one of the chief export markets for dried cod fish is the West Indies. However, to appreciate the significance of fish in the diet of these island peoples it is necessary to be convinced by personal contact with such a régime. Except poultry, fish, either imported or locally

Casting for a school of small fish, Freshwater Bay, Barbados, B.W.I. (Photo by O. D. von Engeln.)

caught, is practically the only non-vegetable food available to the majority of West Indians. This dependence on fish is especially in evidence in Barbados with its teeming population.

The picture gives expression to one phase of the intensive fishing practised by the Barbadians. It is also a splendid illustration of a special skill. This fisherman is casting a net from above to envelop a school of small fish like sardines.

The site of the picture is the shore edge of the great, fringing coral reef along the west and south coasts of the island. At some points this reef is very wide and the water far out from the shore is less than six feet deep. Deep sea fishing for redfish is conducted beyond the outer edge of this fringing reef. An acquaintance who

is an ardent fisherman went along for a day. He asked about bait which seemed to be lacking and was advised it would be available in due course. When the party in the fishing boat was miles out from the home port a black head, with a large basket perched upon it, appeared in the waste waters. It was the remaining member of the crew who had waded out with the bait which was secured at a point far down the coast from the point of departure.

In these waters off the west coast the Barbadians also capture flying fish. Barbados is one of the few places in the world where flying fish are taken in quantity and are a staple food. Finely divided bait is spread on the water and as the fish rise to the surface to take this bait they are scooped in the equivalent of a butterfly net. But more probably they are caught under water than when they sail (fly) above the surface.

Flying fish are very good eating but another small fish caught on the east coast is considered a greater delicacy. To taste best this fish must be cooked immediately after it is caught. So the Barbadian planters have a saying that it must swim once in water (the ocean), once in fat (the frying pan), once in rum (the planter's stomach).

The last phrase is in the manner of being a reflection on Barbadian habits, but one not at all resented. However the Barbadians were exceedingly wroth with an American author who published a tale, not truly a fish story, to the effect that a Barbadian Negro had chalked a great sign: "Welcome, Prints of Whales" on the wall of a warehouse facing the harbor at Bridgetown on the occasion of the Prince of Wales' visit; an event of supreme importance to Barbados. Their ire was not so much directed against the, let us say, "bebigging" of the Prince as it was at the implication that anyone in Barbados able to write would not know his fish better!

EDITORIAL NOTES AND NEWS

DR. O. D. VON ENGELN, Cornell University, returned some months ago from a trip around the world. He spent considerable time in field studies especially in the California-Nevada desert and Los Angeles districts, Hawaii, Japan, southern France, Sicily, the Alps and Harz mountains, and the North Sea islands of Germany.

DR. H. O. LATHROP, State Teachers College, Whitewater, Wisconsin, is author of a "Laboratory Manual in Economic Geography for High Schools." He has been made Director of the Summer Session, and Director of Secondary Education at Whitewater. His colleague, Professor W. C. Fischer, has conducted a European Field Course during the past two summers.

DR. GLENN T. TREWARTHA spent the summer and early autumn in reconnaissance field studies in several parts of Japan.

COL. LAWRENCE MARTIN, Chief of the Division of Maps at the Library of Congress, is editor of the "George Washington Atlas," published recently by the United States George Washington Bicentennial Commission. Copies of the Atlas may be obtained from the Superintendent of Documents.

DR. F. E. MATTHES, of the United States Geological Survey is engaged in a study of the terraces and other physiographic features of the Mississippi Valley in southeastern Missouri, with a view to unraveling certain remarkable episodes in the Mississippi's past history as a result of which the geography of the Lower Mississippi Valley has been changed radically.

MISS ERNA GRASSMUCK, head of the department of geography at Indiana State Teachers College, Pennsylvania, recently visited North Dakota on the invitation of the Executive Committee of the State Council of Geography Teachers and delivered convocation addresses at the State University at Grand Forks, and at the State Teachers College in Minot on the subject "Worldmindedness." She also gave a series of addresses at the Annual Convention of the North Dakota Educational Association at Bismarck, including two before the General Assembly entitled, "Education as a Means of Understanding" and "The Contribution of Geography to the Program of Education," and one each in geography conferences held in the elementary, superintendents and principals, and geography sections.

In order that people might become intimately acquainted with a bit of natural landscape and the plant and animal life thereof, Benton Mackaye conceived the idea of making a foot trail along the crest of the Appalachians from Maine to Georgia. Hundreds of young people belonging to local clubs along the way have helped build this trail, one-half of which is now completed. Mr. Mackaye, in the *Scientific Monthly*, April, 1932, describes the way in which the promotors of the idea hope the trail will be used to get a "primeval understanding" of the area traversed.

The production of soy beans in the United States is increasing rapidly. Last year, more than a million acres were devoted to the crop. In order to test this bean, the U. S. Department of Agriculture sent an expedition to Asia which brought back more than 3000 varieties. These were grown last year in the Arlington Experiment Station, Virginia. This year the varieties will be tested further in experiment stations in different parts of the country.

It is reported in Foreign Trade Notes, November 7, 1931, United States Department of Commerce, that oil with a 24.5 per cent gasoline content has been obtained from drillings started at the bottom of certain German potash mines. The company carrying on the combined production of potash and oil claims prospects of profitable operation. According to the above quoted Trade Notes, second place in world petroleum production has been taken by Russia with more than a 12 million barrel production in the first nine months of 1931, outstripping Venezuela whose monthly production has averaged about 9 million barrels.

The Department of State has recently added a map series to its list of publications. Two of them are of special interest to teachers: Map No. 1, the New World and the European Colonial System; May No. 2, Manchuria and Adjacent Regions, showing Railways and Principal Motor Routes. They may be obtained at small cost from the Superintendent of Documents, Washington, D.C.

The State Council of Geography Teachers of Mississippi was organized last April in Jackson, in connection with the State Education Association. Mrs. Horn of Jones County Junior College, Ellingsville, was elected President.

The Shenandoah National Forest has been renamed the George Washington Forest. It was frequently traversed by Washington and in part surveyed by him. Another change in name is that of the Colorado National Forest, now named the Roosevelt National Forest.

The United States Geographic Board has just released the "First Report on Foreign Names" which was prepared by Foreign Names Comimttee composed of Dr. Boggs, Geographer of the Department of State, and Dr. Helen Strong, Geographer of the Bureau of Foreign and Domestic Commerce, Department of Commerce. The report gives the proper spellings of nearly 2500 of the more important names of countries, cities, rivers, and other natural features in all parts of the world. The report gives both the "local official" and "conventional English" forms and contains a general transliteration table, which is the basis of all spellings of names in countries not using a Latin alphabet, such as the Russian, Turkish, and Greek. The report may be purchased for ten cents from the Superintendent of Documents, Washington, D.C.

INTEREST-STIMULATING DEVICE

I have found the following devices quite helpful for review work.

I

Topics are written on small slips of paper and put in a hat and passed around the room. Each one draws a slip and must recite on the topic he drew. Sometimes it adds zest if a blank piece of paper is put in the hat. Whoever draws the blank must recite if someone does not know the topic he has drawn.

II

Each student writes five questions. Each question is written on a separate slip of paper. When called upon a student steps before the class and calls upon a classmate to draw one of his questions. If the classmate cannot answer, the one who has made out the questions must answer his own.

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Longmont, Colo.

GEOGRAPHICAL PUBLICATIONS

The George Washington Atlas, Prepared by The George Washington Bicentennial Commission. Dr. Lawrence Martin, Editor, Professor Albert Bushnell Hart, Historian, Hon. Sol. Bloom, Associate Director. Size 14 x 18 inches, 50 plates, Washington, D.C., 1932.

The title page states: "A Collection of 85 maps, including 28 made by George Washington, seven used and annotated by him, eight made at his direction or for his use or otherwise associated with him, and 42 new maps concerning his activities in peace and war and his place in history."

The first inner cover of the Atlas is a general map showing in red the many journeys taken by George Washington; these journeys extended from Savannah in the South to Crown Point, N.Y., in the North, and to the Ohio River country in the West, involving tens of thousands of miles of travel. Of these major journeys, eight were taken in New England, 127 in Maryland, and an even greater number in Virginia. There is also an inset map showing the route of Washington's only journey outside of the United States, namely, his visit to Barbados in the West Indies in 1751-52.

Besides the fourteen pages of maps showing Washington's journeys and places visited by him, there are six full-page plates showing more detailed maps of regions or cities visited by Washington. These maps show houses, taverns, battle grounds, and many other locations associated with Washington. For example, 57 such locations are shown and named in Boston and vicinity, and 59 in Philadelphia and vicinity. A full-page plate shows in seven states some 30 locations of lands owned by Washington at one time or another, for he was one of the great landholders of his time. There are many exact reproductions of manuscript maps made or annotated by Washington himself. His surveying and mapping activities covered half a century.

An impressive and interesting map is one showing all of the continents of the world with the distribution of some 200 places in foreign countries where Washington is honored in having his name attached to a Plaza, Avenue, Boulevard, or other feature. His name appears especially frequently in South America and Europe, but it also occurs in New Zealand, Morocco, South Africa, and many other unexpected places. The final double-page plate shows the location in the United States of hundreds of towns, townships, counties, villages, mountains, lakes, etc., which carry the name of Washington. The Atlas contains an excellent index, and an annotated Table of Contents.

The work involved in digging up and verifying the information which is shown in this Atlas has been prodigious. The editorial staff, under Doctor Martin's direction, has worked untiringly in running down information, and has made every effort to be accurate in all things shown. The atlas is a very real contribution to our knowledge of Washington, and the American people will be grateful to the Bicentennial Commission for bringing out such a valuable record.

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